DOCUMENT RESUME

ED 278 166 EA 019 167

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TITLE Distance Education: The Promise and the Confusion!
PUB DATE Jul 86
NOTE 15p.; Paper presented at the Annual International Conference on Improving University Teaching (12th, Heidelberg, West Germany, July 15-18, 1986).
PUB TYPE Speeches/Conference Papers (150) -- Reports - Descriptive (141)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Cost Effectiveness; *Distance Education; Educational Planning; *Educational Technology; Elementary Secondary Education; Postsecondary Education; Programing (Broadcast); Telecommunications; *Telecourses
IDENTIFIERS Alaska; Learn Alaska Network

ABSTRACT

Large amounts of money can be wasted and serious disillusionment with the potential of distance education can set in when agencies decide to install extensive and expensive telecommunications systems before they conduct adequate planning. The State of Alaska spent $30 million to purchase and install the equipment for the Learn Alaska Network, a system designed to enhance educational opportunities from the elementary to the postsecondary level for 30,000 Native Alaskans living in remote areas. Only a little more than $200,000 per year was allocated to programing, however, despite evidence from experiences in Great Britain, Canada, and other parts of the United States that such levels of support were completely inadequate. If Alaska had followed an appropriate planning model, the costs of the program would have been recognized as too high relative to the benefits, and the original investment would not have been made. Such planning models involve asking such questions as who the clients are, what problems they face, what kinds of programs can help them, who can develop the programs, what delivery systems are available, what geographic factors affect delivery, what costs and support are involved, how long the project will take, and what contingencies to consider. (PGD)

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DISTANCE EDUCATION: THE PROMISE AND THE CONFUSION! *

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Introduction

There is much confusion about the role of telecommunications and instructional technology in distance education. Because of this confusion, the same fundamental error is made over and over again. All too frequently, those thinking of using telecommunications systems to serve distant learners begin to focus their attention on telecommunications systems before thinking carefully about the clients to be served and the nature of the programs to be delivered. As a result, large amounts of money are wasted, and civic and governmental leaders as well as potential clients are disappointed and become so disillusioned that any mention of "distance education" or "telecommunications" is greeted with derision. A case study to understand the nature of this confusion might be helpful.

A Case Study

Some six or seven years ago, the State of Alaska decided to create a statewide telecommunications system that would deliver university, secondary and elementary programs and courses to Alaskans scattered in small communities throughout the state, outside of the three major urban areas--Anchorage, Fairbanks, and Juneau. Low-powered television transmitters, each with its own satellite down-link, were to be located in more than 150 small

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communities. A major television production facility and a satellite up-link were to be established in Anchorage, along with an electronic bridge for audio-teleconferencing.

The ostensible rationale for the creation of this system was that Alaskans, living in rural areas (particularly Native Alaskans) needed access to high quality educational programs at all levels that could not be provided economically any other way. The programs and courses were to be either produced in Anchorage or acquired and televised to these communities. The audio teleconferencing network was used to provide individuals watching the television programs with the opportunity to ask questions and to discuss the educational materials they had seen on television. It was also to be used for courses that would be taught using only the audio conferencing system.

The State of Alaska invested approximately $30 million in the purchase and installation of the telecommunications equipment and ancillary facilities needed to create the Learn Alaska Network. The University of Alaska created the University of Alaska Instructional Telecommunications Consortium (UAITC) to operate the television system on behalf of the University and the State Department of Education, and UAITC began to function in 1982. This year, because of declining state revenues, a decision was made to close the Learn Alaska Network. One of the reasons the Network is being closed, apart from declining state revenues, is that it was not carrying out effectively the functions for which it was created.

Given the way in which the Network was planned and operated, it was doomed from the beginning to fail. In my view, it failed for the following reasons:

1. There were only about 30,000 Native Alaskans scattered throughout the state. There were not enough people in the intended audience to justify the creation and programming of a sophisticated television based distribution system;

2. Somewhat more than $200,000 was provided annually to program this $30 million system. This amount of money was far too small to support much original program production and most of the programs were acquired from the lower 48 states. Thus, much of the programming had little relevance to the Native Alaskans for whom it was ostensibly intended;

3. The people in charge of the Learn Alaska Network saw their role primarily as that of programming a public broadcasting station similar to those operated in the lower 48 states rather than that of running an educational services delivery system intended to help their clientele improve and enrich their lives through the acquisition of new knowledge, skills and attitudes; and

4. A good deal of time, energy and resources were wasted because of feuding within the University of Alaska system over which unit of the system would control the Learn Alaska Network and how the $200,000+ available for programming each year would be divided among the units of the University.

This Alaskan case is, then, almost a classic example of the consequences of focusing on telecommunications technology almost as an end unto itself rather than as a means to serve a particular client group. A thoughtful planning effort, completed before a decision was made to go ahead with creation of the Learn Alaska Network, would have shown that the approach taken was not feasible economically, particularly if one added to the $30 million capital investment, the size operating budget it would have taken to develop and deliver effective distance education programs that used television.

In planning a telecommunications based distance education program, one should answer a number of key questions before deciding what type of technology to use to deliver the program.

Planning Questions

I. Who are the clients?

   A. What are their social, economic, cultural and demographic characteristics?

   B. How many of them are there?

   C. Where are they located?

II. What specific problem or problems do they face that the distance education program being considered will help them resolve?

III. What type of distance education program(s) will help them resolve the problem(s)?

   A. Level

   B. Formal/Non-formal

   C. Objectives

   D. Content

   E. Assessment mechanisms

   F. Record keeping

   G. Counseling and other student support systems

IV. Who will develop and deliver the program?

   A. A new organization

   B. An existing one

V. What existing means are available for distributing the programs and providing for feedback and questions?

   A. Telephone, microwave, satellite

   B. Radio

   C. Television

   D. Instructional technology (i.e., computers, telewriters, facsimile)

E. Postal service (for print material) or other distribution system

F. Personnel qualified to have contact with students at group distribution sites

VI. If a totally new telecommunications system must be created, what geographic and climatic considerations must be taken into account?

VII. Given the characteristics of the intended clientele, the content, and existing telecommunications systems, which mix of media will be most appropriate (efficient and effective)?

VIII. How much money will be required?

A. For Capital

1. To expand existing systems or construct new ones

2. To purchase and install equipment

3. To construct buildings and other facilities

B. For operating expenses

1. To develop a continuing supply of educational software.

2. To operate the system

a. Technically
b. Programmatically
c. Repairs and maintenance
d. To develop integrated programs (i.e., curricula, degree and certificate programs)
e. Evaluation
f. Security

3. To pay for student support systems and services

a. Tutorial help
b. Counseling
c. Assessment
d. Record keeping and certification
e. Library materials and laboratory supplies

IX. What will the source or sources of funds be?

A. Government

B. Private organizations

C. Students (tuition)

X. How long will it take to plan the project and implement it?

XI. What contingencies need to be taken into account?

Use of The Planning Model Would Have Altered Alaska's Plans

If those charged with planning the Learn Alaska Network had merely answered question "I" above, they would have discovered that the capital cost of the system per Native Alaskan was $1,000. Moreover, if they had also realized that a low average hourly cost for programming such a television system would be about $2,500, they would have determined that ten hours of programming per day, 365 days per year would cost $9,125,000 or an additional recurring cost of $304 for each Native Alaskan. This would have led them to conclude very quickly the cost of using television to provide distance education for the intended clientele was much too high and could not be justified economically.

Having arrived at such a conclusion, they could then have turned their attention to other much less expensive ways of reaching the intended audience. An audio system alone, for example, or in combination with some form of facsimile or mini-computer designed to transmit print materials might have been much more economical and efficacious than the television system that was actually installed.

Suppose, however, that the planners and the state officials had decided, on the basis of the analysis, that the $1,000 capital cost per Native Alaskan was bearable and that providing these people with quality distance education programs was so

important that the state would create the Learn Alaska Network. (This is, in fact, what happened, but without the analysis.) The knowledge that the state would not provide much more than $200,000 annually to program the system should have doomed the entire project before the first dollar was spent on the acquisition of equipment.

The failure on the part of governmental officials and educational leaders to realize that the development of high quality distance education programming to be delivered via television is an extremely expensive recurring cost item was a key problem. Without a willingness to provide regular funding for this purpose, there was little point in going forward with the installation of the telecommunications equipment and other facilities.

This failure to realize the importance of providing funds for the creation of high quality distance education software is, all too often, the key problem faced by those who wish to serve distant learners using telecommunications systems. It is important to understand why distance educators face this problem over and over again.

The Reason Why Funding Sources Fail to Realize the Importance of Funding Software Development

Most of us with degrees, diplomas or certificates have a lifetime's worth of exposure to courses taught in traditional ways. We have an implicit model in our minds about the nature of the educational process. We think educators do essentially the

same things regardless of the level at which they teach: they plan the course; present material and make work assignments; stimulate and motivate students; assess how much the students have learned; report the results of their assessment to a central record keeper and to the students; and, most important, they provide an example for the students of the way authority figures behave toward students and toward one another.

Teachers and faculty members generally develop their own courses on an individual basis. Apart from an occasional summer grant to support a university faculty member while he or she develops a new course, there are no major costs associated with the work. Most new courses are developed as they are taught. Teachers and faculty members are paid a single sum of money to develop and deliver a course.

Given these assumptions about the nature of instruction, is it any wonder decision makers think all they need do is construct a telecommunications system and it will effectively transmit whatever goes on in the classroom? Little or no additional preparation, planning or money is needed, according to this model, once a telecommunications system is in place. Thus, these assumptions lead key decision makers to fail to recognize the software problem.

The Software Problem

If one is serious about serving distant learners, one needs to think about offering entire degree or certificate programs, and the cost of developing such programs must be considered and

provided before plans are made to construct the system. One cannot expect students to enroll in a single course unless they have a firm assurance there will be a complete program for them in which to enroll.

In the United States, the average bachelor's degree program consists of 40 three credit courses. The average bachelor's degree program in Canada usually includes 30 three-credit courses. Thus, if one were planning to offer a complete telecommunications-based distance education bachelor's degree program in either country, it would be necessary to include in the annual operating budget funding for the development of approximately five courses per year for eight years in the United States and for six years in Canada. Moreover, because courses become obsolete, one must include regular provision for course revision as well as new development. This means that the annual budget for course development and revision will remain relatively constant (with provision for inflationary increases) over time.

The cost of developing an individual course varies greatly depending upon the form or forms of technology to be used for course delivery, the other components of the course (e.g., print materials, laboratory kits, micro-computers, and tutorial sessions), as well as the course development model one uses.

While the variation in costs between various forms of technology are self-evident (high production value broadcast television and interactive video disc are, by far, the most expensive forms of software and audio is one of the least expensive forms), the course development model used is also an

extremely important cost factor. Let me use three examples to illustrate the wide range of differences in current practice.

The British Open University (BOU), one of the most successful and sophisticated distance learning organizations in the world, typically uses a team approach to develop its extraordinarily high quality courses. The BOU pays a team of six or seven faculty members, most of whom are full-time, regular members of the BOU faculty, a television producer, and other support staff for two full years to develop a single course. These courses, of six months' duration, carry approximately 15 American or Canadian credits. The cost of developing a single BOU year-long course is often more than $2 million (U.S.).

In British Columbia, the Open Learning Institute (OLI) spends from $7,000 - $15,000 (Canadian) to develop a single, three-credit, semester long course. OLI has no faculty of its own and usually contracts with a single faculty member, employed full-time by one of the three traditional provincial universities, to write a course.

Three credit, semester-long telecourses produced in the United States frequently cost between $500,000 and $1 million each. The BOU courses frequently include expensive television and radio components and very elaborately produced print materials. Typically, the OLI courses have included only well done, but not elaborate, print materials. Traditional American telecourses usually include 30 half-hour television programs that convey up to 60% of the academic content, with the rest of the content covered in a textbook and student guide.

The BOU and OLI approaches to course development are cost effective given the numbers of potential students to be served. The BOU serves a nation with a population of more than 50 million people while the Open Learning Institute delivers distance education programs to a province with a population of about 4 million. It is doubtful that the American approach is cost effective except for a very small number of courses that enroll many thousands of students.

Here it might be helpful to project the cost of developing a single, complete distance education bachelor's degree program in the United States and in Canada, using the BOU, OLI and American telecourse approaches to course development. Remember that the U.S. baccalaureate degree program consists of 40 three-credit courses and the Canadian 30 three-credit courses. The cost of a fifteen-credit BOU half-year course is $1 million, half of what it costs to produce a year-long course. It costs OLI $15,000 to develop 1 three-credit course, and the traditional American 30/30 telecourse costs more than $500,000.

Estimated Cost of Developing Full U.S. and Canadian Distance Education Bachelor's Degree Programs Using the OLI, BOU, and American Course Development Models

	U.S. Degree 40 three-credit courses (120 credits)	Canadian Degree 30 three-credit courses (90 credits)
American Model	$500,000 = $20,000,000	$500,000 = $15,000,000
OLI Model	$15,000 = $600,000	$15,000 = $450,000
BOU Model	$8,000,000	$6,000,000

Note: Each BOU semester-long course is worth approximately fifteen U.S. or Canadian credits.

These figures illustrate quite clearly why it is so important for decision makers to understand the critical importance of including in their plans for telecommunications-based distance education programs regular funding for the development of software--support at a level that is feasible economically, given the population to be served and the nature of the program to be delivered.

In addition to the software problem, another major issue frequently confronted by those who seek to plan telecommunications-based distance education programs is whether or not to attempt to use existing television and radio broadcasting stations to transmit the electronically mediated portions of their courses.

Broadcasting Stations vs. Educational Delivery Systems

Broadcasters, particularly in the Western industrialized nations, generally share one primary goal: to attract the largest possible audience to view or listen to their programs at all times. They emphasize delivering high production value programming that will compete successfully with other activities for the attention of the audience. While broadcasters of commercial programming and their advertisers expect as many members of the audience as possible to purchase the products being advertised, viewing television programs or listening to radio broadcasts are passive activities.

An educational services delivery system (ESDS) generally has objectives much different from those of a broadcasting station. The goal of an ESDS is to help narrowly defined groups of leaders acquire new knowledge, attitudes and skills for future use. The most effective distance education programs involve students actively in the learning process.

Broadcasters are reluctant to provide time for educational programming unless it has high production value, is attractive, entertaining and has the broadest possible audience appeal; distance educators, wishing to serve more narrowly defined audiences, frequently are less concerned about aesthetic quality than pedagogical content. Since broadcasters control their stations' programming, distance educators wishing to deliver educational services, may not find broadcasters receptive unless the distance education programs to be offered have high production value, are attractive and have broad audience appeal.

Because of this fundamental difference between broadcasters and educators, it is generally an error to put distance education programs under the control of broadcasters or broadcasting organizations. When they are in control they emphasize the things that are important to them, neglecting the academic integrity of the programming and the curriculum in favor of high production values.

One of the reasons for the failure of the Learn Alaska Network was the people in charge of the system saw it as a public broadcasting station rather than an educational services delivery system--and then programmed the network accordingly.

In closing this paper, let me emphasize the key point made in the introduction. One of the primary reasons many telecommunications-based distance education programs have failed is the all too frequent focus on telecommunications qua telecommunications and the consequent failure to consider and plan specific distance education programs before deciding on what telecommunications system to use.

Unlike many railroads, which were built on the assumption they would generate traffic, educational telecommunications systems will not generate use simply because they exist. Educational and academic program decisions should dictate the nature of educational telecommunications systems.